

intel[®] *Development Solutions*

MCS[®]-51 Utilities
Pocket Reference
for DOS Systems



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Notational Conventions

THIS TYPE	Use these keywords, letters, symbols, and punctuation verbatim. Upper or lowercase is acceptable.
<i>italics</i>	Substitute language elements or constructs for true terms.
[]	Optional constructs.
[]...	Optional constructs that can be repeated any number of times.
[,...]	The preceding item may be repeated, but each repetition must be separated by a comma.
{ }	Alternate constructs. Choose any one of the constructs enclosed in the braces.
/*text enclosed*/	Text enclosed is a prose definition of the construct.

When two adjacent items must be concatenated, they appear with no space between them. A blank space between two items indicates that the two items may be separated by one or more blanks.

Definitions of Common Terms

Term	Definition
<i>name</i>	Names can be from 1 to 40 characters long and must be composed of letters (A-Z), digits (0-9), or special characters (? , @ , _). The first character must be a letter or a special character.
<i>module-name</i>	Same as name.
<i>segment-name</i>	Same as name.
<i>pathname</i>	A valid filename reference or device reference. See next two items for examples.
<i>filename</i>	A reference to a disk file. The format is: <i>root [.ext]</i>
<i>device</i>	A reference to a non-disk device. Examples: :LP:, :CO:, :TO:.
<i>value</i>	A 16-bit unsigned integer. Examples: 1011B, 304Q, 4096D (or just 4096), 0C300H.
<i>address</i>	Same as value.

RL51 Command Format Summary

[*directory* | *device*] RL51 *input-list* [TO *output-file*] [*control-list*]

where

[*directory* | *device*]

is the directory or device where RL51 resides.

input-list : ▪

input-file [*module-list*][,...]

input-file : ▪

filename

RL51 Command Format Summary (Cont'd.)

module-list : ▪

(*module-name* [...])

output-file : ▪

filename

control-list : ▪

control ...

control : ▪

$\left\{ \begin{array}{l} \text{listing-control} \\ \text{linking-control} \\ \text{locating-control} \\ \text{configuration-control} \\ \text{overlay-control} \end{array} \right\}$

listing-control : ▪

$\left\{ \begin{array}{l} \text{print} \\ \text{pagewidth} \\ \text{map} \\ \text{symbols} \\ \text{publics} \\ \text{lines} \\ \text{ixref} \end{array} \right\}$

print : ▪

$\left\{ \begin{array}{l} \text{PRINT [(pathname)]} \\ \text{NOPRINT} \end{array} \right\}$

pagewidth : ▪

PAGEWIDTH(*value*)

map : ▪

$\left\{ \begin{array}{l} \text{MAP} \\ \text{NOMAP} \end{array} \right\}$

symbols : ▪

$\left\{ \begin{array}{l} \text{SYMBOLS} \\ \text{NOSYMBOLS} \end{array} \right\}$

RL51 Command Format Summary (Cont'd.)

publics : =

$$\left\{ \begin{array}{l} \text{PUBLICS} \\ \text{NOPUBLICS} \end{array} \right\}$$

lines : =

$$\left\{ \begin{array}{l} \text{LINES} \\ \text{NOLINES} \end{array} \right\}$$

ixref : =

$$\left\{ \begin{array}{l} \text{IXREF}[\text{selection-list}] \\ \text{NOIXREF} \end{array} \right\}$$

selection-list : =

(*selection-item* [...])

selection-item : =

$$\left\{ \begin{array}{l} \text{generated} \\ \text{libraries} \end{array} \right\}$$

generated : =

$$\left\{ \begin{array}{l} \text{GENERATED} \\ \text{NOGENERATED} \end{array} \right\}$$

libraries : =

$$\left\{ \begin{array}{l} \text{LIBRARIES} \\ \text{NOLIBRARIES} \end{array} \right\}$$

linking-control : =

$$\left\{ \begin{array}{l} \text{NAME}(\text{module-name}) \\ \text{debugsymbols} \\ \text{debuglines} \\ \text{debugpublics} \end{array} \right\}$$

debugsymbols : =

$$\left\{ \begin{array}{l} \text{DEBUGSYMBOLS} \\ \text{NODEBUGSYMBOLS} \end{array} \right\}$$

RL51 Command Format Summary (Cont'd.)

debuglines : =

$\left\{ \begin{array}{l} \text{DEBUGLINES} \\ \text{NODEBUGLINES} \end{array} \right\}$

debugpublics : =

$\left\{ \begin{array}{l} \text{DEBUGPUBLICS} \\ \text{NODEBUGPUBLICS} \end{array} \right\}$

locating-control : =

$\left\{ \begin{array}{l} \text{PRECEDE} \\ \text{DATA} \\ \text{BIT} \\ \text{IDATA} \\ \text{STACK} \\ \text{XDATA} \\ \text{CODE} \end{array} \right\} \text{ (segment [...])}$

segment : =

segment-name [(*address*)]

configuration-control : =

ramsize

ramsize : =

RAMSIZE(*value*)

overlay-control : =

$\left\{ \begin{array}{l} \text{OVERLAY}[(\text{overlay-unit} [...]) |] \\ \text{NOOVERLAY} \end{array} \right\}$

overlay-unit : =

ov-module-name *calls* *ov-module-name*

ov-module-name : =

$\{ \text{module-name} \}$

calls : =

> or]

Listing Controls

Control	Effect
PRINT [(pathname)]	Sends the listing file to the file or device specified by pathname.
NOPRINT	Suppresses the listing file; overrides any of the following listing controls.
PAGEWIDTH (value)	Specifies the maximum page width to be used.
MAP	Outputs memory map to link summary.
NOMAP	Suppresses memory map.
SYMBOLS	Outputs local symbols to symbol table.
NOSYMBOLS	Suppresses local symbols.
PUBLICS	Outputs public symbols to symbol table.
NOPUBLICS	Suppresses public symbols.
LINES	Outputs line numbers to symbol table (high-level language translators only).
NOLINES	Suppresses line numbers.
IXREF [(selection-list)]	Appends intermodule cross-reference report to print file.
NOIXREF	Suppresses the intermodule cross-reference report.

NOTE: The default for any control (except IXREF) is the positive form (PRINT, MAP, SYMBOLS, PUBLICS, and LINES).

Linking Controls

Control	Effect
NAME (<i>module-name</i>)	Specifies the name of the output module. If the NAME control is omitted, the output module name defaults to the name of the first input module processed.
DEBUGSYMBOLS	Copies local symbol information to output file.
NODEBUGSYMBOLS	Suppresses local symbols
DEBUGPUBLICS	Copies public symbol information to output file.
NODEBUGPUBLICS	Suppresses public symbols.
DEBUGLINES	Copies line number information (high-level language translators only) to output file
NODEBUGLINES	Suppresses line numbers.

NOTE: For all linking controls except NAME, the default is the positive form (DEBUGSYMBOLS, DEBUGPUBLICS, and DEBUGLINES).

Locating Controls

Control	Address Space	Address Range (Hex)	Segment Types (and Attributes)
PRECEDE	Register banks and bit-addressable space in on-chip data RAM	00H-2FH	DATA (UNIT-aligned); IDATA
BIT	Bit-addressable space in on-chip data RAM	00H-7FH (see note 1)	BIT; DATA; IDATA
DATA	Directly-addressable on-chip data RAM	00H-7FH	DATA (UNIT-aligned); IDATA
IDATA	Indirectly-addressable on-chip data RAM	00H-0FFH (see note 2)	IDATA
STACK	Same as IDATA (see note 3)	Same as IDATA	Same as IDATA
XDATA	External data RAM	0-0FFFFH	XDATA
CODE	Code memory	0-0FFFFH	CODE



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